

This Practice Examination consists of 60 marks that assess recall from the five units of this course. In addition, 34 marks relate to applied questions that test your application of knowledge from Psychology 2111. This exam should take you no longer than 90 minutes.

<b>Unit #</b>	<b>Name</b>	<b>Marks</b>	<b>% of Total</b>
<b>1</b>	Introduction to Research in Psychology	1–12 (12 marks)	13%
<b>2</b>	Theories and Measurement	13–26 (14 marks)	15%
<b>3</b>	Non-experimental Research Methods	27–38 (12 marks)	13%
<b>4</b>	Experimental Research Methods	39–50 (12 marks)	13%
<b>5</b>	Data Analysis and Communication of Results	51–60 (10 marks)	10%
<b>6</b>	Applied: Graphic and Tabular Interpretation	61–94 (34 marks)	36%

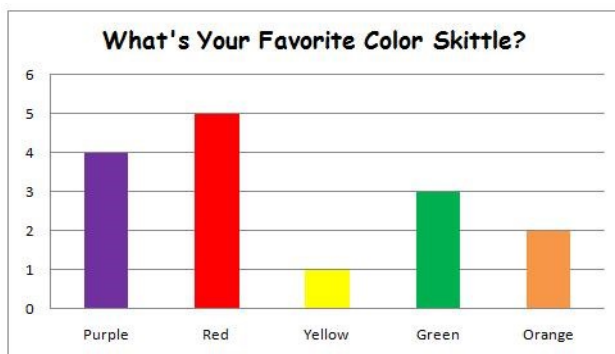
## Unit 1—Introduction to Research in Psychology (13%)

Read the following description to answer questions 1–10.

You and some friends are debating whether children prefer primary colors (red, yellow, blue). Your friends say kids prefer primary colors, but you're not so sure. When you ask them how they know this, they say, "Everyone just knows that!" To test this idea, you find a group of 25 children (5–10 year olds), and you give each child 50 Skittles that are a mixture of equal numbers of purple, red, yellow, green, and orange candies. (These are the only Skittle colors produced!) Each child can pick 10 Skittle candies. You measure the three most common colors that they choose.

1. Which approach to knowledge is your friend using in this scenario?
  - a. Common sense
  - b. Appeal to authority
  - c. Personal insight
  - d. Scientific method
  - e. Faith
  
2. What is the variable that you are measuring in this project?
  - a. The three most common Skittle colors selected.
  - b. The number of children in the project.
  - c. The mixture of the 50 Skittle colors.
  - d. The one Skittle color that each child selected.
  - e. None of the above
  
3. What key characteristic makes your approach more scientific than your friends' approach?
  - a. Quantification
  - b. Replication
  - c. Validation
  - d. Observation
  - e. Reliability

4. Why is a scientific approach generally preferable to answering questions like the one in the above scenario?
  - a. It is always right.
  - b. It minimizes the limited and biased nature of personal experience.
  - c. It produces knowledge that is certain and never changing.
  - d. It is the preferred method when one cannot appeal to an authority.
  - e. Science through deduction is able to limit bias and subjectivity.
5. What kind of variable is Skittle color in the above scenario?
  - a. Quantitative
  - b. Qualitative
  - c. Categorical
  - d. Empirical
  - e. Both b and c
6. What can we say about the children used in the study?
  - a. Since only a few children from one culture were used, we can't make any generalizable conclusions.
  - b. They are a valid population of children, and their results can be reliably generalized to all children.
  - c. They are a sample of children from which we can generalize to other 5–10 year olds that are similar to them.
  - d. If all we were interested in were these few children, we could consider them a population.
  - e. Both c and d



*Figure 1.* The average number of five differently colored candies chosen by 5–10 year old children. Source:

<http://www.psychology4a.com/psychological-research-and-scientific-method.html>

7. What kind of data graph is depicted in Figure 1 above?
- Bar graph
  - Scatterplot
  - Positive correlation
  - Line graph
  - Multivariate regression graph
8. In the experiment involving colored Skittles and favorite colors (Figure 1), what extraneous or confounding variables would have to be considered?
- Width of the bars in the graph
  - Ethics when working with vulnerable populations
  - Flavors of the candies
  - Children's previous experience with Skittles
  - Both c and d
9. In the scenario described above (Figure 1), it would be a reasonable assumption that some of the children might eat some of the candies even if they had been told not to. It also is a reasonable assumption that some of those children might be allergic to ingredients in the candies or may even be frustrated by not being able to eat them. Which ethical principle would be most clearly violated by a failure to let the children and their legal guardians know that they will be exposed to candies in the study?
- Respect for confidentiality
  - Respect for persons
  - Justice
  - Respect for privacy
  - None of the above

10. Imagine that the study in the scenario was actually not about color preferences but actually about how much will power children of different ages have when exposed to candy and told not to eat any. The children were told that the study is about something other than will power because deceiving them is necessary to obtain unbiased data. What procedure must you include in your study to ensure good research ethics conduct?
- a. No procedure is needed. You should never conduct psychological studies with children that involve deception of any kind.
  - b. About 1 month after the study, you should let the children and their guardians know that deception was used. It is important to wait this long so that any harm from the deception will be minimized because the children mostly will have forgotten participating in the study.
  - c. Conduct a debriefing session immediately after experimentation revealing the deception, justifying its use, and answering any questions.
  - d. None of the above answers follow ethical guide lines.
11. What kind of statistical relationship between variables best describes the finding that performance on a Research Methods practice exam increases the more one studies (in hours)?
- a. Between group correlation
  - b. Within group correlation
  - c. Negative correlation
  - d. Positive correlation
  - e. Curvilinear and causal
12. In general applied research is \_\_\_\_\_ in value compared to basic research.
- a. Superior
  - b. Inferior
  - c. Equivalent
  - d. Synonymous
  - e. None of the above

## Unit 2—Theories & Measurement (15%)

13. Each time a hypothesis is supported by a research study:
- We prove our hypothesis.
  - Our confidence that the hypothesis is correct increases.
  - The hypothesis becomes a theory.
  - The hypothesis becomes a model.
  - Both b and c are correct.

**Read the following description to answer questions 14–16.**

Prospect theory describes decision making under conditions of uncertainty and risk. This theory predicts that people tend to avoid risks when things are going well, and they tend to seek risks when things are going poorly. The theory has revealed consistently that people's decisions are driven more by emotion than reason, and these counterintuitive findings have overturned the dominant economic model of how humans make financial decisions. One study found that the pain felt by people who have \$50 taken away is greater than the joy felt by those same people who win \$50.

14. What makes Prospect theory a good scientific theory of human behaviour?
- It clearly organizes a set of observations; it enables specific predictions to be made; it generates new hypotheses.
  - It describes a set of outcomes with precision; it enables us to predict human behaviour independent of context; it is counter-intuitive.
  - Since it has been verified by many experiments, it cannot be falsified now; it makes statistical predictions that apply across many different people and situations.
  - No good scientific theories of human behaviour exist; there are only the results of good or bad experiments.

15. Good scientific theories can be falsified. How could we begin to falsify Prospect theory?
- a. Argue that comparing wins to losses is illogical.
  - b. Repeat the study using very different participants and a different set-up. If the same finding does not happen, the theory is false.
  - c. The theory is false if a different theory exists that accounts for people's risky decisions, and if that theory is more widely believed by experts.
  - d. Repeat the study in exactly the same way and show that the joy felt by people who win \$50 is greater than the sorrow of people who lose \$50.
  - e. Both b and d are correct.
16. Prospect theory has been supported by many experiments in both psychology and economics. The theory explains many findings, some of which were quite puzzling. What property of good scientific theories is described by the ability of a theory to explain many findings?
- a. Falsifiability
  - b. Precision
  - c. Parsimony
  - d. Predictability

**Read the following description to answer questions 17–23.**

The hormone melatonin is produced in the brain's pineal gland. Production increases in the darkness of night and helps prepare the body for sleep. Researchers want to test the theory that the blue component of light in TVs, cell phones, and other devices reduces melatonin production and, therefore, disrupts sleep. You design a study involving 100 volunteers who are given laptops and told to watch a 2 hour movie in bed from 10 pm to midnight, after which they will go to sleep. The laptops given to half of the volunteers (Experimental Group) will be modified so that they do not emit any blue light. The other half (Control Group) will use unmodified laptops. All participants are instructed to set an alarm for 6 am and, immediately upon waking, they will rate the quality of their sleep using the following rating scale:

Quality of Sleep Rating Scale

1 = poor    2 = below average    3 = average    4 = above average    5 = excellent

One hour later, they will complete the Thurstone Test of Mental Alertness that uses 126 items to measure a person's ability to acquire new knowledge and skills, understand relationships, and then apply them to problem solving situations of varying complexity.

17. What psychological construct(s) is/are being measured in the above experiment?
- a. Amount of blue light emitted
  - b. Quantity of melatonin produced
  - c. Sleep quality and mental alertness
  - d. Number of hours slept
  - e. None of the above



18. What prediction are the researchers making?
- The experimental group will have worse sleep quality but higher mental alertness scores than the control group.
  - The experimental group will have worse sleep quality and lower mental alertness scores than the control group.
  - The group that sleeps longer will perform better on the mental alertness test.
  - Those people who are naturally sensitive to blue light will be most affected with respect to both the quality of sleep and mental alertness measurements.
  - Melatonin improves sleep.
19. Which of the following would be an operational definition of mental alertness?
- Participants' self-assessed sleep quality ratings
  - Score on the quality of sleep test
  - Score on the mental alertness test
  - Type of mental errors made throughout the experiment
  - Difference in intelligence levels between the experimental and control groups
20. What level of measurement is used by the Sleep Rating Scale?
- Nominal
  - Ordinal
  - Interval
  - Ratio
  - Likert Scale
21. The researchers who first developed the Thurstone Test of Mental Alertness (TTMA) found a correlation of  $+0.80$  between people who had been given the test and then given the same test a month later. What do these findings mean?
- TTMA has high test-retest validity.
  - TTMA has good split-half consistency.
  - TTMA has good inter-rater reliability.
  - TTMA has good face validity but not good content validity.
  - TTMA has high test-retest reliability.

22. Quality of sleep can be assessed in a number of ways. In this study, the researchers chose to use two different operational definitions of sleep quality. Which two of the three categories did they use?
- a. Self-report; physiological
  - b. Self-report; behavioural
  - c. Behavioural; physiological
  - d. Converging; behavioural
  - e. Within group; between group
23. If the scores on the quality of sleep rating scale do not correlate with performance on the TTMA, then which form of validity has been compromised?
- a. Discriminant
  - b. Face
  - c. Content
  - d. Convergent
  - e. Content
24. Lawyer Natalie argues that an IQ test based on how well one plays poker is silly. What type of validity is she speaking about?
- a. Discriminant
  - b. Face
  - c. Content
  - d. Convergent
  - e. Content
25. Does the test measure what it claims to test? What are we looking for here?
- a. Validity
  - b. Reliability
  - c. Correlation
  - d. Standard deviation
  - e. Point by serial comparison

26. Reporting someone else's research findings is called plagiarism.
- a. True
  - b. False
  - c. Plagiarism is allowed in science, so the term is no longer used.

## Unit 3—Non-experimental Research Methods (13%)

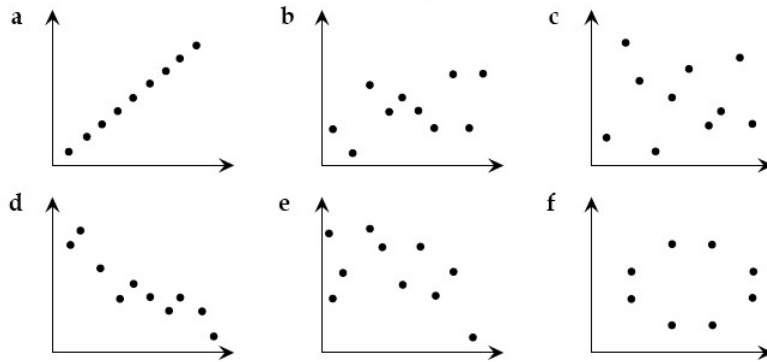


Figure 2. Six different scatterplots.

27. Which of the six scatterplots in Figure 2 above is closest to indicating the following relationships:  $r = +1.0$ ;  $r = -0.4$ ;  $r = 0$ ?
- a; b; c
  - a; e; f
  - d; b; f
  - a; c; d
  - Can't tell unless a correlation test is performed
28. Kim Peek was a man with incredible mental talents and was the inspiration for the film *Rain Man*. He could read a book in 1 hour and remember 98% of it. He could accurately recall the details of some 12,000 books. He would simultaneously read the left page with his left eye and the right page with his right eye. What research method would psychologists use if they wanted to study Kim's specific abilities in great depth?
- Naturalistic observation
  - Archival research
  - Case study
  - Quasi-experimental study
  - Within group study

29. Researchers were interested in the relationship between self-esteem and depression. They recruited 50 people currently experiencing depression and 50 people without symptoms of depression. Then they assessed levels of self-esteem in both groups. Why is this a quasi-experimental research method?
- a. The researchers couldn't ethically control who was and wasn't depressed.
  - b. It is unethical to measure people's levels of self-esteem when they are already depressed.
  - c. Low self-esteem causes depression.
  - d. The relationship between self-esteem and depression is too complicated for this to be a naturalistic study.
  - e. This is not a quasi-experimental design.
30. From which types of research can a scientist draw causal inferences?
- a. Surveys
  - b. Case studies
  - c. Correlations
  - d. Experiments
  - e. Quasi-experimental designs
  - f. Both d and e
  - g. Both a and b

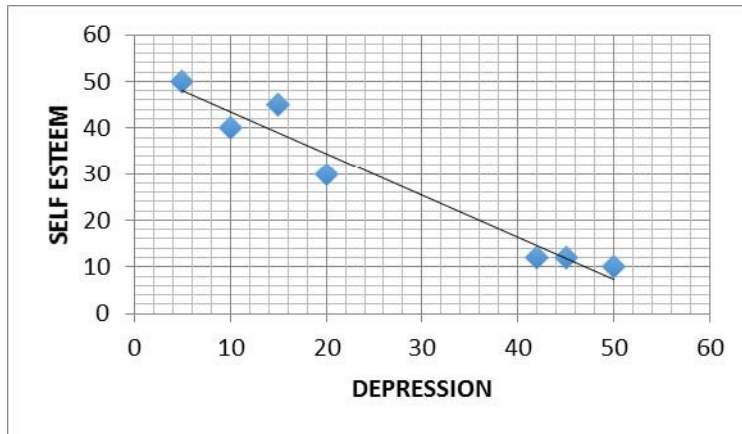


Figure 3. Correlation between self-esteem and depression.

31. Figure 3 above shows the relationship between self-esteem scores and depression scores based on questionnaire data. What can we conclude about this relationship?
- High levels of depression cause low levels of self-esteem.
  - Low levels of self-esteem cause high levels of depression.
  - Self-esteem and depression are positively correlated.
  - Self-esteem and depression are negatively correlated.
  - A predictable and highly correlated relationship exists between depression and self-esteem.
  - Both d and e are correct.
32. Researchers want to study how self-esteem changes in children from kindergarten to Grade 12. They decide to recruit a sample of 500 kindergarten aged children of both genders from 12 schools across the country and to study them by testing them at each grade level. Self-esteem will be assessed by having the children rate their own self-esteem using 13 age-appropriate assessments and by having their teachers assess their self-esteem. What kind of research design is being used?
- Longitudinal
  - Cross-sectional
  - Multiple case-study
  - Quasi-experimental

33. In the study on children's self-esteem described above, three of the schools were private schools with expensive tuitions and nine were publically funded schools. Which threat to internal validity is most likely present because of this situation?
- Testing maturation
  - Regression to the mean
  - Selection
  - Instrumentation
  - Design contamination
34. Which of the following is not an advantage of survey research?
- Surveys are relatively easy to administer.
  - Surveys are relatively cost effective.
  - Surveys can be conducted remotely.
  - Surveys can collect a broad range of data.
  - All of the above are advantages.
35. Researchers wanted to know how many students check their cell phones during lectures. They asked a student to work with them and sit in the back of the classroom to record all instances of cellphone use during a 1-hour lecture. What is an advantage of this research method?
- Cause and effect relationships can be determined if the students do not realize that they are being observed.
  - The quasi-experimental method is particularly good to study rare phenomena.
  - The case study method is more ethical than video-recording the students because one of their own is obtaining the data.
  - In a naturalistic study, data are not collected in an artificial lab but in the real world environment where they occur spontaneously.
  - The face-to-face real world survey methodology enables rich qualitative assessments.

36. Two researchers want to know if a dietary supplement will improve short-term memory in adults over 70 years old in a repeated measure design. They give the dietary supplement followed by the memory test a day later. The same memory test is administered to 1/2 of the subjects 3 days later by one researcher and four days later to the other 1/2 of the subjects by the other researcher (the other researcher took a personal day). What threat to internal validity could be present because of this situation?
- Maturation
  - Testing
  - History
  - Instrumentation
  - All of the above
37. In order of highest to lowest, which research methods have the highest internal validity?
- Correlational, case studies, quasi-experimental
  - Experimental, quasi-experimental, correlational
  - Case studies, archival, experimental
  - Naturalistic, case study, correlational
  - Between groups, within groups, point by serial
38. Which of the following is/are the strongest correlation(s)?
- $r = -.97$
  - $r = +.75$
  - $r = +1.94$
  - $r = +.97$
  - Both a and d



## Unit 4—Experimental Research Methods (13%)

Read the following description to answer questions 39–50.

**Hypothesis:** Expressive writing therapy—via catharsis—will help first year university students who are experiencing relationship turmoil.

**Participants:** Sixty university students (19–22 years old) volunteered and were awarded 2% on their final grades in psychology 1110. Participants were told that the study was about how writing about relationship difficulties affect memory. Deception was used so as to not reveal the real purpose of the study. Participants were debriefed after completing the study.

### Method

After volunteering, participants were then randomly assigned to either an expressive writing group (30 students) or a journal-writing group (30 students).

**Assessment:** Before the writing aspect of the study began, participants completed a short-term memory test (STMT) and the Relationship Assessment Scale (RAS). The (RAS) is a seven-item measure of an individual's satisfaction with their relationship.

Following are the instructions given to each group:

- a. Expressive Writing Group: Write about your relationship difficulties using very personal and emotional language.
- b. Journal-Writing Group: Write about your day focusing on what you did, whom you met, and where you went. Be as objective as possible.
- c. Both groups were instructed to write for 20–25 minutes per day for 4 consecutive days.
- d. Both groups were instructed not to worry about punctuation, grammar or spelling.

**Assessment:** After the writing aspect of the study was completed, participants again completed the short-term memory test (STMT) and the Relationship Assessment Scale (RAS).

39. What is the most important dependent variable in this study?
- Expressive writing
  - Journal-writing
  - Relationship satisfaction as measured by the RAS
  - Short-term memory recall
  - Both c and d
40. Name the type of selection and the type of assignment of the participants to the study's conditions.
- Random selection, random assignment
  - Random selection, non-random assignment
  - Non-random selection, non-random assignment
  - Non-random selection, random assignment
  - Matched groups, random selection
41. Science deals in \_\_\_\_\_; is \_\_\_\_\_; and does not deal in \_\_\_\_\_.
- Probability; inductive; truth
  - Truth; deductive; levels of certainty
  - Probability; deductive; truth
  - Logic; deductive; inference
  - None of the above
42. This study uses a single-blind procedure. What does this mean?
- Neither the participants nor the researchers know who is in what condition.
  - The participants did not know what condition they were in.
  - The treatment is administered only once.
  - Mild deception is being used.
  - The researchers did not know what condition the participants were in.

43. What is the independent variable? \_\_\_\_\_. The independent variable is \_\_\_\_\_.
- a. Scores on the Relationship Assessment Scale; measured
  - b. First year university students' relationship satisfaction; manipulated
  - c. Performance on the memory test; measured
  - d. Type of writing (expressive vs. journal); measured
  - e. Type of writing (expressive vs. journal); manipulated
44. Which of the following could be an extraneous/confounding variable in this study?
- a. Writing expressively about relationship difficulties may lead participants to talk to their friends about their difficulties. Talking may have a greater therapeutic effect than the writing.
  - b. People from different cultures may interpret expressive writing differently and express more or less.
  - c. People with many past relationships may react differently than those with one or less romantic relationships.
  - d. Married couples who have gone through expressive journaling therapy in the past may respond differently.
  - e. All of the above are correct.
45. The participants in this study were first year university students (19–22 years old). One criticism of this study is that the results cannot be generalized to other people, for example, 40–50-year-old people. What kind of validity is this problem highlighting?
- a. Internal validity
  - b. Construct validity
  - c. External validity
  - d. Criterion validity
  - e. Predictive

46. Why might a researcher run a pilot study?
- Save money
  - Take a quick look
  - Debug
  - All of the above
47. What question will a pilot test not be able to answer?
- Does expressive writing lead to a statistically significant increase in relationship satisfaction?
  - What is the power of the test?
  - Does it appear that the participants are guessing the question or hypothesis?
  - How long does the procedure take per participant and does evidence exist that they are becoming bored or frustrated?
  - Both a and b are correct.
48. It has been theorized that expressive writing increases relationship satisfaction by providing deeper cognitive and emotional processing of the problem, which helps bring perspective, diminishes recurrent negative thoughts, and helps find solutions. To confirm that this is the mechanism of action, the researchers could have used assessments that, for example, measured reductions in recurrent negative thoughts. What is such a confirmation procedure called? This procedure also provides evidence supporting the \_\_\_\_\_ of the manipulation.
- Confirmation bias; test re-test reliability
  - Manipulation check; construct validity
  - Statistical re-validation; statistical significance
  - Variable confirmation; clinical significance
  - Validity confirmation; point-by-serial reliability

49. What type of research design did the researchers use?
- a. Waitlist control design with double-blinding
  - b. Randomized clinical trial
  - c. Randomized, between-subjects design
  - d. Non-randomized, correlational study
  - e. Non-randomized; Latin Square design
50. A within-subjects design might have improved this study. In what way is a within-subject design superior to a between-subjects design in this regard?
- a. The within-subjects design is much easier to run.
  - b. The within-subjects design is less susceptible to carryover effects.
  - c. The within-subjects design better detects statistical relationships by controlling extraneous variables.
  - d. The within-subjects design usually avoids the need for counterbalancing.
  - e. None of the above; a matched group between subject design is always superior.

**Unit 5—Data Analysis and Communication of Results (10%)**

Practice Exam Score	Frequency
50	1
48	1
45	2
42	7
40	5
38	2
35	2

51. The frequency table above shows hypothetical data from a study looking at the scores of students completing a Practice Exam in an online Research Methods course. What is the most frequent score? This score is called the \_\_\_\_\_.
- 50; mean
  - 45; median
  - 42; mode
  - 7; standard error
  - 7; mean
52. In addition to p-values, it is good practice to report effect sizes. What do measures of effect size, like Cohen's  $d$ , assess?
- Whether or not an experimental treatment was effective
  - Central tendency of a data set
  - Height of a distribution divided by its width
  - Strength of a statistical relationship
  - Probability that the results occurred by chance

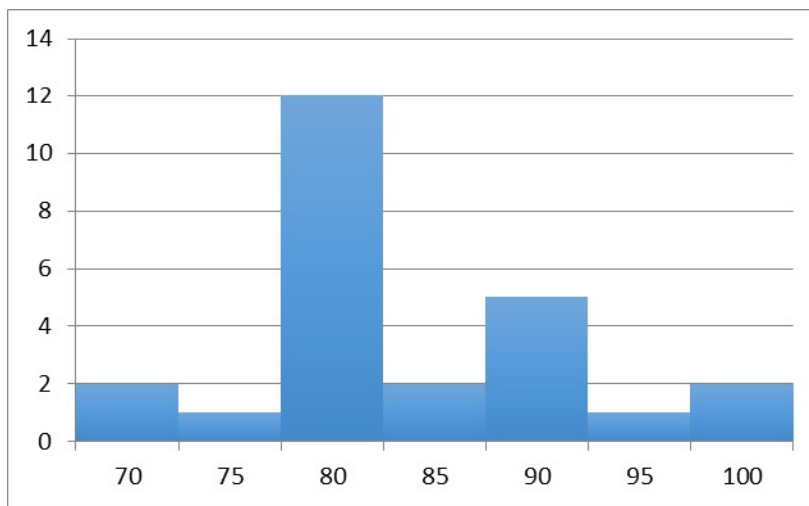


Figure 4. Histogram of practice exam scores.

53. Examine the histogram above (Figure 4) that plots the frequency of Practice Exam Scores (in discrete percentages) from 25 students. What is the median score? If the scores were considered to be continuous, what would be the approximate median score?
- a. 75; 85
  - b. 80; 80.30
  - c. 82.5; 85
  - d. 70; 92.5
  - e. 100; 100
54. For the histogram of Practice Exam Scores, what measure of “average” is least likely to be distorted by extreme scores?
- a. Mean
  - b. Mode
  - c. Median
  - d. Standard deviation

55. The most sensitive measure of central tendency is the:
- Mean
  - Median
  - Mode
  - Standard error of the mean
  - Standard error of the median
56. The top five students received the following scores (%): 90, 90, 95, 100, 100. What is the mean score?
- 90
  - 92
  - 95
  - 99
57. For the following distribution: 2,2,2, 4,4,4,4,4, 5,5, 6, 7,7,7,7,7, 9,10, which is the mode?
- This is a bi-modal distribution with 4 and 7 being the modes.
  - The central tendency of a data set is 5.
  - You would take the height of the distribution divided by its width on a graph.
  - It depends on whether the data is continuous or discrete.
  - This distribution does not have a mode.



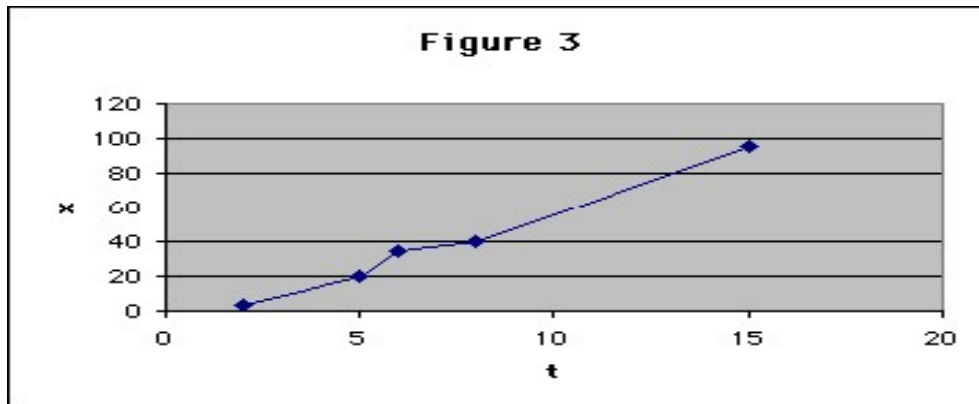


Figure 5. Line graph.

58. Name two APA-style violations of graph design in the above graph (Figure 5).
- The y-axis should have stopped at 100; the x-axis should have stopped at 15.
  - It does not contain any units; the “x” and “t” should have been capitalized.
  - The graph background should be white; the data points do not cover the range of the graph.
  - The x-axis and y-axis do not have labels; the graph lacks an informative title.

Table 1

*Correlation Matrix of Blood Pressure (BP), Age, Weight, Body Surface Area (BSA), Duration, Pulse, and Stress*

**Correlation: BP, Age, Weight, BSA, Dur, Pulse, Stress**

	BP	Age	Weight	BSA	Dur	Pulse
Age	0.659					
Weight	0.950	0.407				
BSA	0.866	0.378	0.875			
Dur	0.293	0.344	0.201	0.131		
Pulse	0.721	0.619	0.659	0.465	0.402	
Stress	0.164	0.368	0.034	0.018	0.312	0.506

59. Using the correlation matrix in Table 1 above, determine the correlation between (i) Weight and Blood Pressure (BP) and (ii) Pulse and Weight.
- 0.659; 0.721
  - 0.407; 0.721
  - 0.659; 0.402
  - 0.950; 0.659

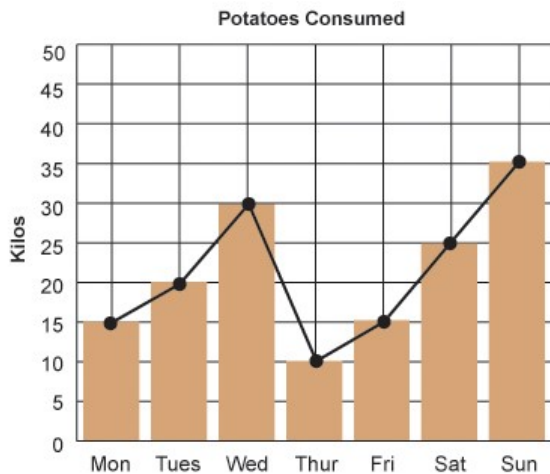


Figure 6. Daily potato consumption for a 1 week period.

60. Figure 6 shows daily potato consumption (kg) over a week period. The data are graphed both as a line graph and a bar graph. Which one is more appropriate?
- Generally, line graphs depict continuous variables that change over time; bar graphs depict categorical variables where quick comparisons are useful.
  - Both are equally good; whether you use a line graph or a bar graph is just a matter of preference.
  - A line graph can only be used for continuous data and a bar graph can only be used for categorical data.
  - Line graphs should always be used for large data sets when you need to show trends; bar graphs should always be used for small data sets when you want to highlight differences.

## Applied—Graphic and Tabular Interpretation (36%)

This section consists of 20 multiple choice questions, 2 fill-in-the-blank questions, and 4 long answer questions. (34 marks in total for this section)

	Temperature F°		
	72°	85°	
Exam			
Long	65	65	65
Short	85	85	85
	75	75	

61. In the above data, how many independent variables are there?
  - a. Two
  - b. Three
  - c. Four
  - d. One
  
62. Is there a test length main effect?
  - a. Yes
  - b. No
  - c. Can't tell
  
63. Is there a temperature main effect?
  - a. Yes
  - b. No
  - c. Can't tell

64. Is there an interaction?
- Yes
  - No
  - Can't tell

What Type of Investigation am I?

### 150 mg/kg IP injection Valium group

	In Hospital	Drop-in	Self-Medicated	
Humanistic	10	30	20	20
Freudian	26	34	20	40
	18	32	20	

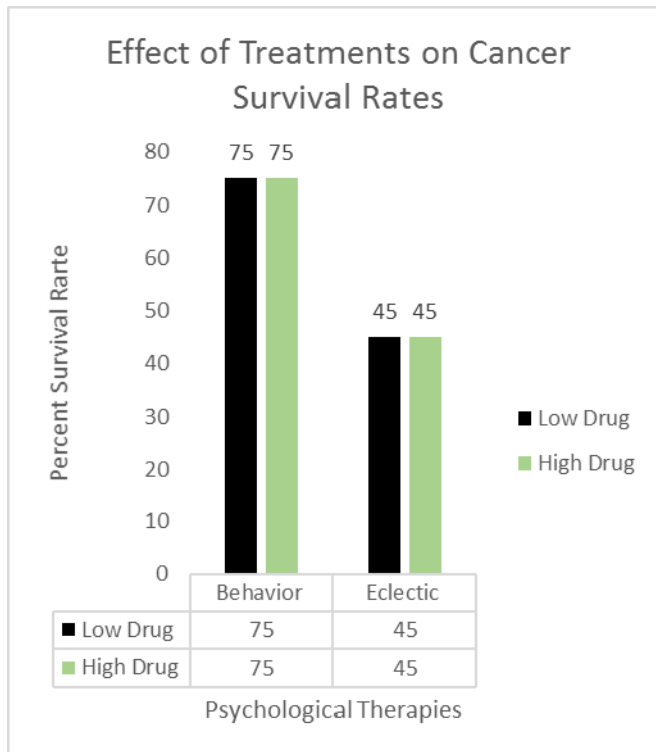
### 350 mg/kg IP injection Valium group

	In Hospital	Drop-in	Self-Medicated	
Humanistic	8	7	12	14
Freudian	4	9	13	13
	6	8	7.5	

65. In the above table, what type of investigation am I?
- Correlational study, laboratory setting, double blind study
  - Quasi-experimental design, Latin square, single blind study
  - Complex factorial design study
  - Medical case study
  - Naturalistic medical observation study
66. In the investigation above, how many independent variables did they use?
- One
  - Two
  - Three
  - Four
  - Five

67. In the investigation above, how many possible interactions are there?
- One
  - Two
  - Three
  - Four
  - Five
68. In the investigation above, how many groups are there?
- Four
  - Five
  - Six
  - Ten
  - Twelve
69. How would you interpret the results from the above experiment? psych = psychotherapy; behmod = behaviour modification; In = inpatient counselling; Day = day treatment counselling; Out = outpatient counselling; 100 mg = Low dose Valium; 300 mg. = high dose valium. High scores indicate antisocial and high anxiety reactions. Lower scores indicate good positive control of patient symptoms.
- It is clear that one combination of three levels works best to control patient symptoms, which is the following: 300 mg of Valium combined with Freudian Therapy all performed while in hospital.
  - It is clear that lower doses of Valium with Humanistic Therapy in a Drop-in setting gives the best results.
  - It is clear that high doses of self-medicated Valium with Humanistic Therapy gives the best results.
  - Actually, main effects or interactions do not occur. None of the treatment plans have an effect, since they all are equally bad.

In the following graph, the dependent variable is cancer survival rate with two forms of treatment A (Drug) and B (Behavior/Eclectic Therapy). Answer the following questions.



70. Is there an A main effect?
- Yes
  - No
  - Can't tell
71. Is the A main effect significant?
- Yes
  - No
  - Can't tell

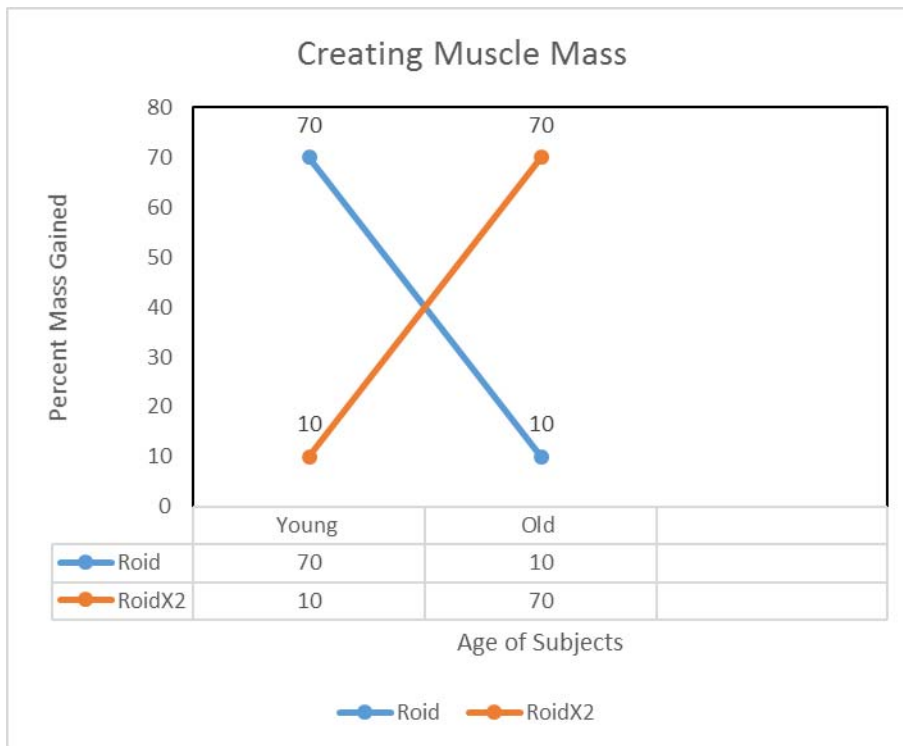
72. Is there a B main effect?
- a. Yes
  - b. No
  - c. Can't tell
73. Is the B main effect significant?
- a. Yes
  - b. No
  - c. Can't tell
74. Is there an interaction?
- a. Yes
  - b. No
  - c. Can't Tell
75. Explain in words what treatment or treatments worked. Interpret what the graph means. What treatment protocol should be followed? (3 marks)

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In the following graph, the dependent variable is amount of muscle mass. The A main effect is a drug manipulation with A1 being the low drug dosage and A2 being the high drug dosage. The B main effect is age related with B1 being young and B2 being old. Answer the following questions.



76. Is there an A main effect?
  - a. Yes
  - b. No
  - c. Can't tell
  
77. Is there a B main effect?
  - a. Yes
  - b. No
  - c. Can't tell
  
78. Is there an interaction?
  - a. Yes
  - b. No
  - c. Can't tell



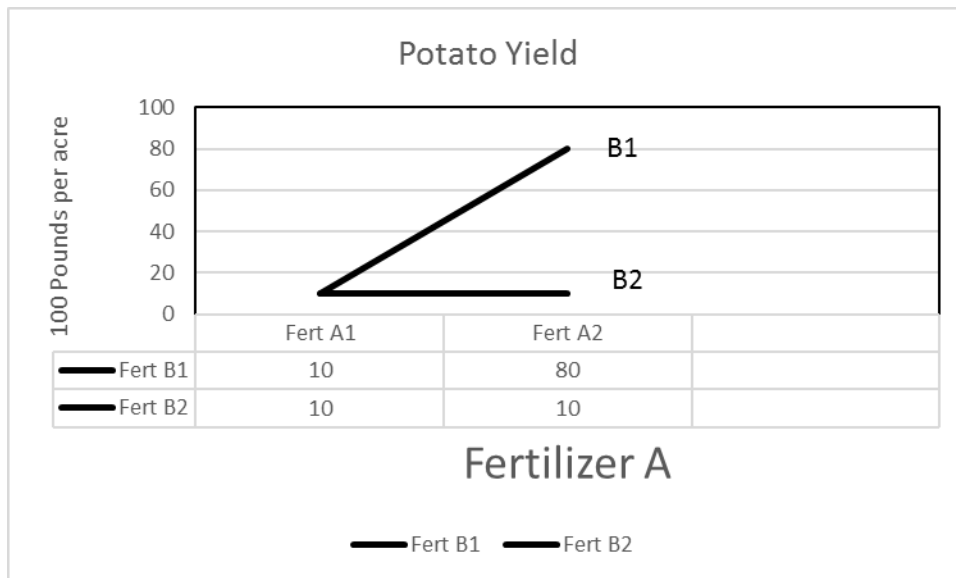
79. Explain in words what you would do for patients to gain muscle mass. Interpret the graph. (3 marks)

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In the following graph, the dependent variable is potato yield using two types of fertilizer A and B. Level 1 is less fertilizer, and level 2 is higher fertilizer usage. Answer the following questions.



80. Is there an A main effect?
  - a. Yes
  - b. No
  - c. Can't tell
  
81. Is there a B main effect?
  - a. Yes
  - b. No
  - c. Can't tell
  
82. Is there an interaction?
  - a. Yes
  - b. No
  - c. Can't tell

83. Interpret the graph. What would you do to get maximum potato yield? (3 marks)

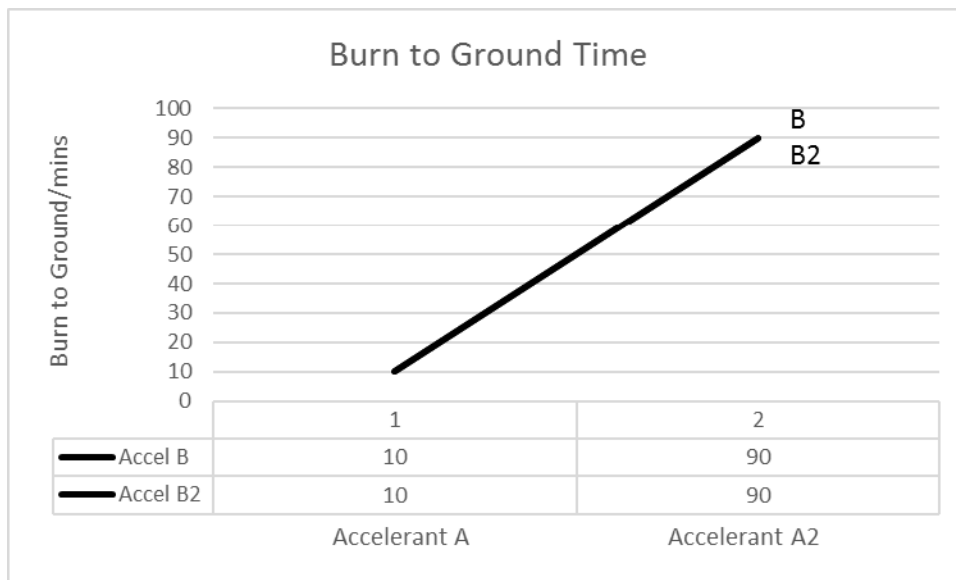
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84. For the above graph, provide two other names for the vertical axis.
85. For the above graph, provide two other names for the horizontal axis.

In the above graph, the dependent variable is the time it takes an experimental structure to burn to the ground. The main effects are two different types of accelerant, each with two levels of concentration: 1 is low concentration, and 2 is high concentration.

86. Describe the A main effect in technical experimental terms. Use jargon to demonstrate knowledge. **Hint:** What is the experimenter doing? What could affect the internal validity, etc.? (3 marks)

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**END OF PRACTICE EXAM**